BP Barber
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February 5, 2009

Ms. Elizabeth S. Werner
North Carolina DENR
Division of Waste Management—Solid Waste
3800 Barrett Drive
1628 Mail Service Center
Raleigh, NC 27699-1628

RE: Permit to Construct Application-Hydro
Highway 55 C&D Landfill—Phase II
Wake County
Permit No. 92-30
BP Barber No. 05185H55

Dear Ms. Werner:

This letter is to acknowledge receipt of the Hydrogeology Review Letter dated February 4, 2009, and to submit the corrections for the above referenced submittal per the aforementioned letter. Attached you will find the Division's comments followed by the corresponding revisions in bold.

1. There is no list of the Appendices or Figures in the Table of Contents. Submit new pages with a list of the Appendices and a list of the Figures with their respected titles.

   A list of appendices and figures has been included to be placed before Tab 1 in the 3-ring binder. A revised Table of Contents (2 pages) for the text is also included; remove the old Table of Contents in the "Construction Plan Application for The Highway 55 C&D Landfill Phase 2" text and replace it with the new Table of Contents.

2. The downgradient monitoring wells (MW-8 through MW-11) listed in the Water Quality Monitoring Plan (Appendix H) are not downgradient of the proposed Phase 2 area. This is based upon reviewing the groundwater contours on the Seasonal High Groundwater Elevation Map where the groundwater is flowing in a Westerly direction. New downgradient monitoring wells need to be selected. Submit a new page stating the new monitoring well locations in the Water Quality Monitoring Plan.

   Included for ease of review is a copy of the Seasonal High Potentiometric Map, along with the Water Quality Monitoring Map. On both maps are all monitoring well locations (both water and methane). From the maps it is determined the direction of flow of the groundwater in the uppermost aquifer is generally from the east. On-site, the water flows in a westerly direction, as well as to the north and south, specifically as it moves through the portion of the site that is Phase II. The newly established groundwater monitoring wells (NGW-8—NGW-11), in conjunction with the previously established groundwater monitoring wells (XGW-2—XGW-7) from Phase I, should adequately monitor downgradient conditions.

3. When sampling the surface water points, make sure not to rinse out the 40mL VOA vials with creek water before taking the sample. This will cause the preservative to be lost.

   Included in the new "Proposed Water Quality Monitoring Plan."

4. Turbidity should be added to the field parameters measured.

   Included in the new "Proposed Water Quality Monitoring Plan."

5. When transferring the surface water from the 500mL sample bottle, make sure to fill the 40mL VOA vial first, then the metals container.

   Included in the new "Proposed Water Quality Monitoring Plan."

6. The application is not sealed by a Licensed Geologist, in accordance with 15A NCAC 13B.0538(b)(2)(J).

Both the Proposed Methane Monitoring Plan and the Proposed Water Quality Monitoring Plan have been have been sealed by a Licensed Geologist. The Site Suitability Application met the requirements of the design Hydrological Report and was sealed by a Licensed Geologist.

PLEASE REPLACE THE ENTIRE APPENDIX G (COMMENTS 3-6).

If you have any questions, please do not hesitate to contact Scott Brown of BP Barber at 704-926-0981 for clarification.

Sincerely,

BP Barber

Scott L. Brown, P.E.
Regional Manager/Senior Project Manager

cc: John Murray, NCDENR—Mooresville
Dan Lamontagne, Griffin Brothers
BPB Project File #05185H55

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PROPOSED METHANE MONITORING PLAN

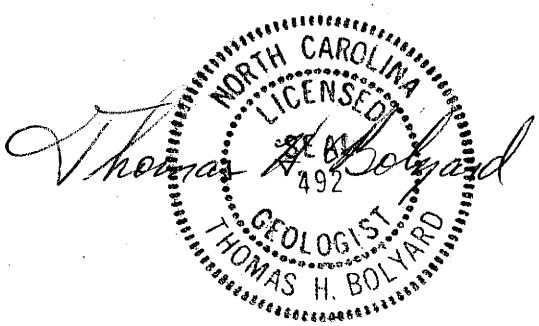
Highway 55 C&D Landfill and Recycling Center
Wake County, North Carolina

Prepared By:

Enviro-Pro, P.C.
2646 Farmlake Lane
Fort Mill, South Carolina 29708

Project No: EP-1306

February 5, 2009



METHANE MONITORING PLAN

A methane gas monitoring program will be implemented to detect possible migration of methane gas off-site from the Phase II area of proposed landfilling. A total of 4 additional methane gas monitor wells (NMG-7 through NMG-10) will be installed around the perimeter of the proposed Phase II area for waste disposal. The approximate locations of these monitor wells are indicated on the attached Water Quality Monitoring Map. These wells will be installed to a depth comparable with the depth of the nearest landfilling, but will not intersect the water table. If bedrock is encountered prior to the desired well completion depth, the well will be terminated at that depth. The methane monitor wells will be screened within the most permeable saprolitic zone that most closely corresponds to the nearest depth of landfilling. Based on previous lithologic information obtained for this portion of the site, proposed well depths will be approximately 15 feet bgs (boring refusal).

If possible, boreholes for the proposed monitor wells will be constructed using a direct push Geoprobe rig. A 10-foot (or 5-foot, depending on the well depth) length of 1-inch diameter Schedule 40 PVC pipe with 0.01-inch slots will be inserted into each probe boring. PVC riser pipe will be threaded into the top of the screen section to bring the pipe approximately 2 feet above ground level. The 1.25-inch annular space will be backfilled with No.2 washed medium sand to a depth of 2 feet above the top of the well screen. A minimum 2-foot bentonite seal will be constructed on top of the sand filter pack, with bentonite used to seal the annular space to within 2 feet of the ground surface. A cement cap will be installed on top of the bentonite to the ground surface. A non-venting PVC pipe cap will be attached to the top of each 1-inch PVC riser pipe stick-up. The drawing details show a typical diagram of a methane monitor well.

Once the methane monitor wells have been installed, their locations will be surveyed and indicated on the Site Plan.

Methane monitoring will be conducted by EP personnel trained to use a GEM 500 methane monitor meter. Monitoring will be performed in each of the four proposed methane monitoring wells (NMG-7 through NMG-10). Testing procedures for the monitoring wells will be as follows:

1). Calibrate the GEM 500 meter in accordance with the manufacture's recommendations for the methane calibration.

2). Remove the cap of the methane monitoring well.

3). Insert the GEM 500 tube into each 1-inch PVC monitoring well to a depth equal to its screened interval.

4). Read the percent methane and percent LEL (lower explosive limit).

5). Record the highest level of methane measured.

No culverts, drains, underground utilities, or any other feature that would constitute a potential conduit for methane migration have been identified at this site.

The methane monitoring will be conducted on a semi-annual basis. The results of these measurements will be recorded for each sampling event and placed in the operating record. Regulations require that explosive gases be controlled such that concentrations will be less than 25% of the LEL for methane in the subsurface at the landfill property boundaries. Should methane gas levels be detected above these limits, landfill personnel will immediately take the necessary steps to protect human health and notify the North Carolina DENR Solid Waste Section. The steps that would be taken include but are not limited to:

- Restrict access to any facility structures or exterior areas displaying high methane levels;
- Prohibit the use of any equipment or materials that may cause sparks or an open flame;
- Report methane levels to the Operations Manager;
- Turn off the electrical main switch outside of any structure exhibiting high methane levels; and
- Direct qualified and properly equipped response teams/contractors to locate the source of methane and cap or isolate it.

Within 7 days of detecting methane levels exceeding the maximum LEL (25% LEL in site structures and LEL at the facility property boundaries), the methane gas levels will be placed in the operating record along with a description of the steps taken to protect human health. Within 30 days of detecting gas levels exceeding the maximum LEL a methane remediation plan will be submitted to the North Carolina DENR, Solid Waste Section for their review and approval. This plan will describe the methods to be utilized to locate the source of methane, and cap or isolate it. Once approved, the plan will be implemented within 60 days.

PROPOSED WATER QUALITY MONITORING PLAN

Highway 55 C&D Landfill and Recycling Center
Wake County, North Carolina

Prepared By:

Enviro-Pro, P.C.
2646 Farmlake Lane
Fort Mill, South Carolina 29708

Project No: EP-1306

Revised February 2009

WATER QUALITY MONITORING PLAN

In order to gain a better understanding of groundwater flow within the conglomeritic bedrock occurring in this area of the Triassic Basin, a meeting with Mr. Rick Wooten and Mr. Tyler Clark of the North Carolina Geological Survey (NCGS) was conducted on March 7, 2002. Based on their extensive field work within the Triassic Basin, NCGS personnel reported that the massive conglomerate (or fanglomerate) unit encountered throughout our study area contained very few fractures and virtually no bedding planes. They concurred with our observations that groundwater movement is extremely slow within this unit, as there appears to be a limited occurrence of preferential flow pathways. However, their findings have indicated a general correlation between the orientation of first order tributaries and preferred fracture orientations in this area. The most prevalent trend encountered appears to be northwest to southeast (NW-SE).

An examination of topography in the proposed Phase II area of landfilling operations indicated two first order drainage features with a NW-SE orientation. Monitor wells area proposed for both features. Any such features will be further evaluated for groundwater monitoring prior to initiating landfilling in proposed Phases III.

Bedrock was observed in the walls of an access road on the southeastern portion of the subject site, in a sewer line trench along the eastern property line to a depth of 10-15 feet, and in a weathered outcrop within the steep northwest area of the site. All bedrock consisted of a massive conglomerate with no visible fractures or bedding planes that would indicate structural control of groundwater.

This Plan for the proposed Phase II area of the Highway 55 C&D Landfill and Recycling Center was developed to meet the requirement of the NCDENR Solid Waste Section. The purpose of this Plan is to identify the methods and procedures to be used to effectively monitor surface water and groundwater quality in the uppermost aquifer present at the subject site downgradient of proposed landfilling operations. This Plan includes sections describing: 1) surface water monitoring, 2) monitor well locations, installation procedures, and construction details; 3) well purging and sampling procedures; 4) analytical methods; and 5) data evaluation and reporting requirements set forth by the NCDENR.

Surface Water Monitoring Plan

Two surface water monitor stations will be established along an unnamed tributary of Little Branch at the approximate locations indicated on the attached Water Quality Monitoring Map, in order to evaluate potential impact to surface water quality from surface runoff or groundwater discharge from the proposed Phase II area of landfilling. The upstream location (NSW-6) will be situated just above the proposed area of landfilling, while station NSW-5 will be located downstream of the landfilling areas just prior to its confluence with Little Branch.

The actual sampling points within the unnamed tributary of Little Branch will be in areas of minimum turbulence and aeration. A single grab sample will be obtained by dipping a laboratory-supplied sample container into the creek. The sample container will be rinsed with the water to be sampled prior to filling the container. Care will be exercised so as not to allow sediment or other debris to enter the sample container. Samples will be obtained at mid-depth near the landfill side of the creek, and in an area that is characterized by cross-sectional homogeneity. Sample containers will be properly labeled, placed on ice in a portable cooler, and transported to Shealy Environmental Services, Inc., in West Columbia, South Carolina or to another North Carolina certified laboratory. About one-half inch of airspace will be left in the plastic bottles for metals analysis. The containers for volatile organic compound analysis will be filled to the top with no air bubbles or headspace.

One of the primary concerns during the collection of surface water samples is to insure that they are not altered or contaminated by sediment or other debris that may affect the analytical results. This is especially true in the case of metals analysis. A 500mL sample bottle that has been pre-cleaned in the laboratory will be removed from the portable cooler and the surface water sample will be collected from the creek using this container. At this time, the sample will be immediately transferred into the laboratory prepared bottles containing required preservatives—having *not* rinsed out the laboratory prepared bottles with creek water. When transferring the surface water from the 500mL sample bottle, make sure to fill the laboratory prepared bottles first, *then* the metals container.

Field parameters (pH, temperature, specific conductance, and turbidity) will be measured and recorded for both the upstream and downstream samples on Falls Branch and Little Branch utilizing a YSI-85 meter. The initial surface water sampling event will be conducted during construction of the landfill and prior to initial waste placement. Unless otherwise directed by the NCDENR Solid Waste Section, subsequent surface water sampling will be performed on a semi-annual basis in conjunction with the surface water sampling conducted for the Phase I landfill area.

Groundwater Monitoring Plan

Proposed permanent monitor well locations for the Highway 55 C&D Landfill and Recycling Center Phase II area are indicated on the attached, Water Quality Monitoring Map. Existing monitor well XMW-1 is located upgradient from all proposed areas of landfilling. The proposed Phase II compliance wells (NMW-8 through NMW-11) are all located downgradient of the proposed area of landfilling. These compliance wells were selected to provide characterization of downgradient groundwater quality and detection of changes in this quality in the Phase II area of the landfilling during and after its operation. Well locations were selected on the basis of existing groundwater flow directions, drainage features, and planned sump locations.

Each of the monitor wells proposed for permanent use at the site will be constructed using 2-inch diameter Schedule 40 PVC, flush-joint casing and 0.0l-inch slotted screen. The annular space between the borehole wall (approximately 8-inch diameter) and the

well casing will be backfilled with washed, medium-grained sand to a level approximately 2 feet above the top of the screen. Upon completion of the filter pack installation, pelletized bentonite will be placed in the annular space to a thickness of 2 feet and water added to allow hydration. The remainder of the annular space will then be filled with a cement/bentonite grout mix. Steel protective casings with locking caps will be placed over each monitor well's riser pipe. A concrete pad will be installed around the outside of each casing. Each lockable protective casing will be painted and identified with a nameplate detailing well construction information. A vented well cap will be placed on top of each PVC well casing to allow equilibration with atmospheric pressures. The top of casing (TOC) and ground surface elevations for proposed wells XMW-1 through XMW-7 will be surveyed and indicated on a Site Plan, and Well Completion Logs for these wells will be included in an Appendix to the first semi-annual sampling report submitted to the DENR after their installation. The boring logs and well completion logs for the new monitoring wells to be installed will be submitted to the Solid Waste Section within 30 days of well installation. Groundwater levels for each of the wells will also be provided.

Existing upgradient well XMW-1 is completed to a depth of approximately 55 feet below ground surface (bgs) with 15 feet of screen to allow for seasonal fluctuation. Proposed downgradient monitor wells NMW-8 through NMW-11 will all be constructed with 15-foot screens and will be completed to approximate depths of 20 to 30 feet bgs. An attempt will be made to keep the top of screen elevation higher than the projected seasonal high groundwater elevation at each well location.

The monitor wells proposed for permanent use will be developed to remove suspended solids and reduce turbidity. Prior to sampling, each well will be purged using a disposable teflon bailer. The protective casing will be unlocked and opened, and the monitor well cap will be removed. An electronic water level indicator will be used to record the depth to groundwater from the top of casing reference point to the nearest 0.01 foot. The resulting measurement will be subtracted from the total well depth to determine the height of the water column (h) in feet. For a two-inch diameter monitor well, the volume of water present will be determined using the following equation:

Well Volume (Gallons) = 0.163h

Field parameters (pH, temperature, and specific conductance) will be measured and recorded at the initiation of purging and upon the removal of each well volume, and will be incorporated into the Water Quality Monitoring Report. Purging may need to be extended beyond three well volumes if field parameters have not stabilized.

Wells that demonstrate sufficient recharge will be purged of a least three volumes of standing water in the well. Some wells may be bailed dry. In this case the well will be allowed to recharge a minimum of 60 percent of its static water level prior to collecting the sample. Purging will be conducted using disposable teflon bailers. These bailers contain a bottom metal weight encased in teflon. Bailers will not be field cleaned and reused in other wells, but will be dedicated for sampling each well. Therefore, no

decontamination procedures will be necessary. One rinse blank will be collected for analysis per each sampling event. Samples will be collected within 24 hours of the completion of well purging.

Samples will be collected by lowering a bailer gently into the water column and allowing the weighted bailer to sink until full. The bailer will be retrieved slowly and the groundwater sample will be poured into clean, laboratory supplied sample bottles in a manner that will limit aeration and the potential loss of volatile organic compounds (VOCs) if present. For samples to be analyzed for VOCs, the sample jars will be filled to the top with no air bubbles or headspace. The glass VOC containers will contain hydrochloric acid as a preservative, while the plastic RCRA metal containers will be preserved with nitric acid.

Groundwater samples will be placed into clean, laboratory-supplied containers, labeled, packed on ice in a portable cooler, and transported to Shealy Environmental Services, Inc., in West Columbia, South Carolina or to another approved North Carolina laboratory. One trip blank will be analyzed for volatile organic compounds (VOCs) for each sampling event. The equipment rinse blank will also be analyzed for VOCs.

Proper chain of custody documentation will be maintained from field sample collection through laboratory analysis. After sample collection, each well will be capped and the steel protective casing will be secured with a lock.

An initial sampling event for the 4 downgradient proposed monitor wells for the Phase II area (NMW-8 through NMW-11) will be conducted prior to any waste placement within Phase II of the landfill. Unless otherwise directed by the NCDENR Solid Waste Section, subsequent sampling will be performed on a semi-annual basis.

Analytical testing of the groundwater samples will consist of EPA Method 8260 for VOCs and the 8 RCRA metals. The laboratory method for arsenic, selenium, cadmium, chromium, lead, silver, and barium will be SW-846-6010B. The laboratory method for mercury total and digestion will be SW-846-7470. A dual view trace ICP instrument will be used to provide detection limits of 1 ppb for all metals except mercury, which will have a detection limit of 0.2 ppb. Sample analyses will be performed by a North Carolina "certified" laboratory. All laboratory data will be subjected to strict laboratory quality assurance/quality control (QA/QC) protocol.

As described in this Plan, surface water and groundwater sampling and analysis will be used to detect any releases from the proposed Phase II landfill area. Well gauging data will be included for each sampling event, along with a summary of all analytical results. The results of each semi-annual sampling event will be submitted to the North Carolina DENR within 45 days after the date of sample collection.